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# Canada's fisheries

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SERIES No. 49



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# Canada's fisheries

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Ottawa, Ontario*

Produced by  
External Information Programs Division,  
Department of External Affairs,  
Ottawa, Ontario, Canada  
K1A 0G2

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The Canadian coastline stretches 241,402 kilometres along three oceans—the Atlantic, the Pacific and the Arctic. Canada's freshwater reserves, maintained by rain and snow (76 to 91 centimetres' average annual precipitation in most parts of the country), are among the most numerous in the world.

These fresh and salt waters contain an abundance of aquatic wildlife comprising some 150 species of fish and shellfish. While substantial amounts are used by various commercial fisheries, species such as salmon, trout and walleye also constitute the basis of an extensive recreational fishery, providing the sport-fishing enthusiast with many hours of enjoyment.

The history of Canada's fishing industry parallels the history of human settlement in North America, since the waterways provided both a plentiful source of fresh food and a means of transportation. In fact, early attempts by Europeans to settle in Canada and the United States rested largely on their ability to maintain a subsistence fishery.

#### *Fisheries zone declared*

Eventually Canada, along with many other nations, began to establish a fishing industry on its east and west coasts, as well as inland. Where the offshore fishery was concerned, Canadian jurisdiction extended only a few nautical miles. In the early 1970s,

however, after ten years of intense fishing especially off the Atlantic coast, it became clear that the entire Canadian fishing industry was being threatened, and the federal government responded by allocating emergency funds to the fishing industry. Then, in 1977, an exclusive fisheries zone was declared, extending 200 nautical miles from both the east and west coasts and in the Arctic. With this action, Canada reaffirmed its rights over its fisheries and clearly announced plans to assume the responsible management of the marine resources under the new extended jurisdiction.

The establishment of the 200-mile limit has revolutionized the entire fishing industry, adding 632,000 square nautical miles of ocean to the area over which Canada exercises fisheries jurisdiction. While the positive impact of extending management boundaries from 12 to 200 miles is evident on both Canadian coasts, the advantages are particularly noticeable on the Atlantic side, where landings have increased from 895,000 tonnes (metric tons) in 1976 to 1.2 million tonnes in 1979. The share of the cod catch almost doubled during the same period and significant increases have occurred in landing figures for other important species. In 1979, Canada was the leading exporter of fish and fish products in the world, with sales abroad valued at \$1.3 billion.

Foreign fishing continues within the 200-mile limit, pursuant to bilateral treaties and under licence restrictions set by Canada's federal Department of Fisheries and Oceans. Quotas are assigned to foreign fleets on the basis of fish stocks which are surplus to the needs of Canadian fishermen. A number of countries, including the U.S.S.R., Poland, Portugal, Spain and Norway, have signed bilateral fisheries agreements with Canada.

#### *Jurisdiction*

Under the British North America Act, the federal government has exclusive legislative jurisdiction over Canada's coastal and inland water fisheries, and undertakes the inspection of all fish and fishery products for trade outside the provinces. The Department of Fisheries and Oceans' mandate is to conserve fisheries resources and to maintain the aquatic environment in a healthy, productive state. All other legislative and administrative responsibilities are delegated to provincial and other federal authorities. Thus, the Department of Fisheries and Oceans is fully responsible for the management of all fisheries, both marine and freshwater, in the Northwest Territories, the Yukon and in the four east coast provinces: Nova Scotia, New Brunswick, Newfoundland and Prince Edward Island. Fisheries management, however, is a provincial

responsibility in the four inland provinces, Ontario, Manitoba, Saskatchewan and Alberta. In Quebec, the provincial government manages all freshwater fisheries and certain marine fisheries. In British Columbia, the fisheries for marine and anadromous species (i.e., fish that migrate from freshwater to the sea) are managed by the federal department, but the provincial government manages freshwater fisheries.

#### *Regional differences*

Marked differences occur in fishing methods, vessels and type of species caught, depending on geographic region, i.e. Atlantic, Pacific or inland (freshwater).

The Atlantic region comprises five provinces: Newfoundland, New Brunswick, Nova Scotia, Prince Edward Island and Quebec. Its commercial fisheries are among the largest in the world and the combined efforts of 48,500 fishermen and 17,000 workers in the processing industry account for an estimated \$560-million worth of the consumer goods produced by industries in this region. Approximately 30,000 fishing vessels, valued at more than \$300 million, are active in the Atlantic fishery.

In 1979, fish and shellfish landings in the Atlantic region totalled approximately 1.2 million tonnes, representing a landed value of more than \$400 million. Cod is the most

valuable species, followed by herring and redfish; among shellfish, the lobster and scallop vie for first place, followed by crab and squid.

The Pacific region, which encompasses all British Columbia and the Yukon territory, is the site of several fisheries whose total annual landed value normally exceeds \$300 million. Approximately 7,000 fishing vessels, valued at about \$400 million, are licensed to fish in the coastal waters. In all, the fishing industry on the west coast provides employment for some 16,785 fishermen and about 4,000 processing plant workers.

#### *Salmon-enhancement program*

Historically, the Pacific-based fishing industry has always relied heavily on salmon production, with the herring fishery running second in economic value. However, because salmon stocks have been declining, the federal government undertook an enhancement program in 1977 and, with the aid of the government of British Columbia, a plan was devised whereby investments of some \$157 million would be made over a seven-year period. The aim of this program is to progressively return salmon and trout stocks to their pre-1900 level of abundance.

The commercial inland fishery is mainly conducted in the three prairie provinces (Alberta, Saskatchewan and Manitoba), Ontario, and the

Northwest Territories. Direct employment is provided for approximately 8,000 fishermen who operate a fishing fleet of some 1,750 boats, valued at about \$12.5 million.

The Freshwater Fish Marketing Corporation, a Crown agency in Winnipeg, Manitoba, established in 1969, buys all the fish caught in the prairies, northern Ontario and the territories. It also determines the initial price paid to the fishermen; monitors the processing, packing and sale of fresh, canned or frozen products on foreign and domestic markets; then pays a bonus to fishermen in the form of payments based on sales revenue. In 1979, freshwater fish landings totalled 49,155 tonnes, representing a landed value of \$43,234,000. The largest part of freshwater fish production goes directly to export markets.

The principal species fished in the inland regions are: smelt (representing almost one quarter of the total production), whitefish (one fifth), walleye (one tenth) and perch (one tenth).

#### *Sport fishing*

Besides commercial fishing, the variety of recreational fishing opportunities that abound in Canada contribute significantly to the tourist industry. According to the results of a survey one out of every six sport fishermen is on holiday in Canada,



mainly from the United States. In addition, between five and six million Canadians—a quarter of the population—fish as part of their recreation. The survey estimated that over 225 million fish were taken and over \$900 million was spent in 1975 for goods and services directly related to sport fishing. About 42 per cent of the expenditure represented money spent for food and lodging. Favourite species for sport fishing are brook trout, pike, walleye, bass and salmon.

To the native peoples in Canada's Arctic, the use of fish and marine mammals has been and will continue to be a vital part of their culture and lifestyle. The allotment of resource harvests takes this into account and the native people are given first priority for their immediate nutritional and social needs, subject to conservation requirements. Comprehensive land-claim settlements, which are currently being negotiated between the federal government and the native peoples, will contain specific provisions relating to the future use of fish and marine mammals for nutritional and social purposes. Any commercial use of these Arctic resources, however, will be open to all Canadians, although it is expected that limited entry provisions will favour local native participation.

### *Scientific research*

It is impossible to completely understand the importance of the resource and the success of the fishing industry without mentioning the work of Canadian fisheries and oceanographic scientists. Canada's international esteem in aquatic-resource management, and other aspects of ocean study, is the result of high calibre research by its scientists. *The Canadian Journal of Fisheries and Aquatic Sciences* (formerly *The Journal of the Fisheries' Research Board*), is also well respected and considered to be important among marine scientific journals.

Research projects are carried out aboard ships and at various research establishments, including: the Northwest Atlantic Fisheries Centre (St. John's, Newfoundland); the Bedford Institute of Ocean Sciences (Patricia Bay, British Columbia); the Pacific Biological Station (Nanaimo, B.C.); the Canada Centre for Inland Waters (Burlington, Ontario); the St. Andrews Biological Station, (St. Andrews, New Brunswick); the Freshwater Institute (Winnipeg, Manitoba); and the Arctic Biological Research Station (Ste-Anne-de-Bellevue, Quebec). Specific goals of fisheries research include: collecting and analyzing data for fisheries management and conservation programs; studying the chemical and physical components of fresh and



salt waters; collecting data on tides and currents for the purpose of studying wave phenomena; and conducting surveys of coastal and offshore waters for the production of marine charts and similar publications.

All the tasks are performed by teams of specialized researchers and scientists, some of whom enjoy a world-wide reputation. For example, many of the activities undertaken by scientists at the Bedford Institute of Oceanography in Dartmouth, Nova Scotia, have resulted in the Institute being recognized as one of the major oceanographic research centres in the world. The quality of its numerous publications, the contributions to international experiments and work on task forces and special projects have all contributed to its high national and international standing.

Another busy centre of scientific research is the Canada Centre for Inland Waters, at Burlington, Ontario. There, scientists in the Great Lakes Biolimnology Laboratory study the effects of man's environmental practices on the well-being of Great Lakes Basin fisheries and the over-all freshwater ecosystem. The Research and Development Division of this installation undertakes biological oceanographic studies in Arctic and sub-Arctic waters as well as in the Great Lakes, and reviews major

federal projects within the region for any potential adverse impact on fisheries.

Applied research at Saqvaqujac, north of Chesterfield Inlet, Northwest Territories, is primarily centred on resource-impact studies. For example, biologists there assess the effects of hydro development, pipeline and highway construction of fish habitats and movement, and suggest ways to prevent or minimize their adverse effects. Field work conducted throughout the N.W.T. includes surveys and the monitoring of a variety of fish and marine mammal populations and their distribution in commercial, recreational and domestic harvests.

Canada's fisheries research expertise is freely shared with other countries through such organizations as the Canadian International Development Agency, the Food and Agriculture Organization of the United Nations, and the Codex Alimentarius Commission, an organization which monitors world food-quality standards. In all, Canada is a member of a dozen international fisheries commissions, which, in addition to exchanging scientific data, also seek to establish sound management policies and programs.

### *Quality control*

As a result of the 200-mile limit, innovative management and research programs, and legislation governing the protection and administration of all aspects of the fishery, the industry has grown considerably in a few years. New management and marketing strategies are essential to ensure future expansion. A major concern must be the quality of fish and fish products destined for domestic and foreign markets.

To this end, Canada's Department of Fisheries and Oceans has devised and implemented new regulations governing quality-control standards for all phases of the industry, from capture and processing operations, through packing and marketing of the final product. The Department has established programs for the certification of fishing vessels, as well as measures to maintain quality control aboard ship, and during on-wharf culling and handling, offloading, and transportation of fisheries products to the plant. New product grade standards, along with general handling and processing procedures, are being established and regulated.

Despite Canada's prominent position as a fishing nation, the *per capita* consumption of fish products domestically is quite low compared to that of many other countries. The Department of Fisheries and Oceans

is actively engaged in promoting in Canada both an increasing awareness of the merits of Canadian fish and seafood and an increasing consumption of fish products.

### *Still much to do*

The establishment of the 200-mile limit is probably the single most important factor contributing to the stabilization and expansion of the Canadian fishing industry. Since 1977, Canada has been able to set quotas and to institute other regulatory measures which ensure the future stability of the fisheries. The 200-mile zone has eliminated the threat of overfishing of stocks entirely within the zone, and, in some cases, the occurrence of cyclical lean years.

An entirely new direction for Canadian fisheries has thus been established in less than a decade. Many problems remain, however: the rebuilding and conservation of fish stocks; the judicious allocation of resources among communities; the type of equipment and fishing fleets; the implementation of a licensing system to ensure adequate returns to those who depend on fish for their livelihoods; the control, through international co-operation, of fishing beyond the 200-mile limit (particularly on stocks that migrate across the limit); the expansion of markets for Canadian fish products

through product development; promotion and reduction of tariff and non-tariff barriers; and the settlement of boundary disputes (particularly between Canada and the U.S.A.).

The aim of all those involved in the management of fisheries in Canada is to ensure that the nation obtains maximum benefits through rational and responsible exploitation of one of its most important living resources.















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